AN ARCHAEOLOGICAL SURVEY FOR THE CONCORD ROBBINS WSC DISTRIBUTION SYSTEM IMPROVEMENTS PROJECT IN LEON COUNTY, TEXAS

Antiquities Permit 7851

William E. Moore

Author and Principal Investigator

Brazos Valley Research Associates

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Project Number 16-02

Principal Investigator

William E. Moore

Prepared for

Concord Robbins Water Supply Corporation
9066 State Highway 7 West
Jewett, Texas 75846

Prepared by

Brazos Valley Research Associates
813 Beck Street
Bryan, Texas 77803

ABSTRACT

Brazos Valley Research Associates (BVRA) conducted an archaeological survey of eight areas proposed for new water in western Leon County, Texas in December of 2016. The size of the eight areas investigated totals 24.04 acres. This work was performed under the supervision of William E. Moore and was sponsored by the Concord Robbins Water Supply Corporation (WSC). No previously recorded sites are present in the areas examined. No cultural resources were identified that were worthy of recording as a prehistoric or historic site. It is recommended that construction be allowed to proceed as planned.

ACKNOWLEDGMENTS

I would like to thank everyone whose cooperation made the completion of this project possible. Laura Moody, P.E. and Michele Amason (CAD Specialist) were my contacts at J. F. Fontaine & Associates, Inc. and their help was greatly appreciated. Dorin Treadway is the General Manager for the Concord Robbins WSC and he provided maps and logistical support. Travis Treadway is the company's Project Manager. He provided transportation to the various areas and assisted with the shovel testing. Ericka Morgan was my field assistant and she was responsible for the digital photography and field notes. Figures 1 and 2 were drafted by Lili G. Lyddon for a previous report. Michele Amason is a computer specialist at J. F. Fontaine & Associates, Inc. and she helped create the topographic maps.

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INTRODUCTION

Concord Robbins WSC plans to improve the domestic water supply to rural Leon County, Texas by installing new pipe and meters at various locations throughout the western portion of the county (Figure 1). When completed, 88 new customers will be added to the system. These areas total 26.81 miles and each area was assigned a number based on the road it parallels. Overall, there are 33 segments of proposed line on State Highway 7, county, farm-to-market, and private roads. The diameter of the pipe will vary in size from 2 inches to 8 inches. Most of the proposed waterlines will parallel existing line and will be placed in road rights-of-way. A few segments will be installed just inside private property within an easement of 15 feet. The depth of the trenches will vary from 30 inches to 48 inches depending on the size of the pipe. Each trench must allow for 36" of cover. The width of the trenches will not exceed 2 feet. The current project will be performed in a manner that will provide an adequate and safe supply water for present and future customers while maintaining compliance with minimum supply, storage, and pressure requirements of the Texas Commission on Environmental Quality (TCEQ). Funding is expected to come from the USDA, Rural Development. The proposed project is considered the most economical and feasible alternative to construct the required and proposed system improvements while reducing significant impacts of the project on environmental resources. Leon County is an area that contains significant prehistoric and historic sites and several major cultural resources investigations have been conducted in the county (see Archaeological Background below). The archaeological investigation that is the subject of this report was performed pursuant to the Antiquities Code of Texas. Seven topographic quadrangles provide coverage of the Area of Potential Effect (APE). They are Hilltop Lakes (3196-112), Jewett (3196-142), Margie (3196-113), Marquez (3196-124), Robbins (3196-141), Round Prairie (3196-131), and Spring Seat (3196-114).

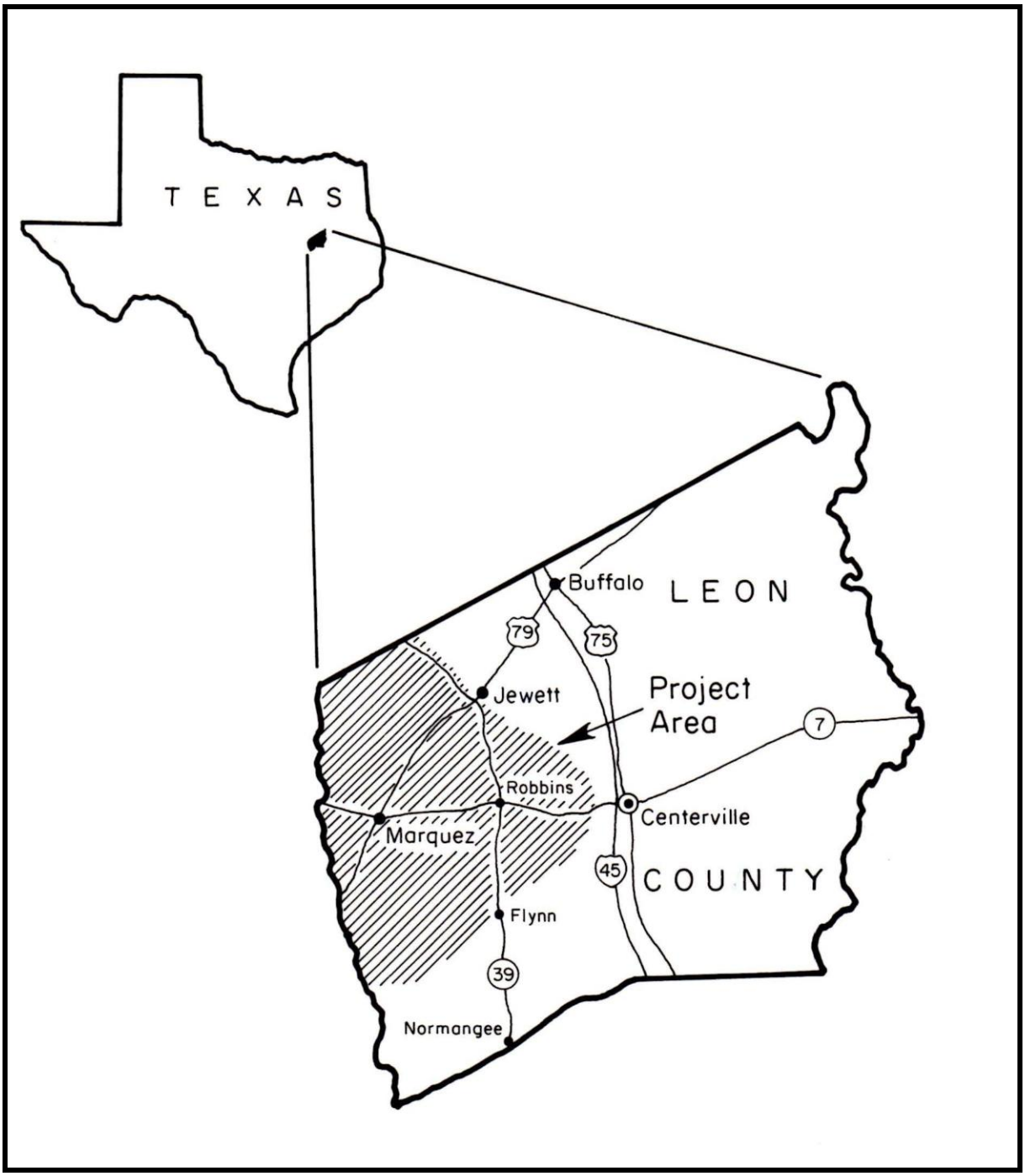

Figure 1. General Location Map

ENVIRONMENTAL SETTING

The following general discussion of Leon County is taken from the most recent soil survey for Leon County (Neitsch et al. 1989) and the 1984-1985 Texas Almanac (Kingston and Harris 1983). Leon County is situated in the eastern part of Central Texas and consists of 690,861 acres or 1079 square miles including areas under water. It has an irregular shape and is about 28 miles long by 40 miles wide. Elevation in the county varies between 630 feet above sea level in the west-central part of the county to about 140 feet in the southeast area. Overall, the topography is characterized as undulating to gently rolling and generally sloping to the southeast. Leon County is located in the West Gulf Coastal Plain, Texas Claypan Area, and Texas Blackland Prairie Major Land Resource Areas. The soils in the county formed under timber, post oak savannah, and prairie vegetation. Those formed under timber or post oak savannah are light-colored fine sandy loam to fine sand while soils that formed under grass consist of dark colored fine sandy loam to clay. The county is drained by numerous creeks and streams that flow into the Trinity and Navasota rivers which form the east and west boundaries of the county, respectively. Annual rainfall varies from 39 to 46 inches. The January minimum temperature is 38 degrees and the July maximum temperature is 95 degrees. These climatic conditions create a growing season of 270 days. Because of the size of the project area, several major soil types are present.

ARCHAEOLOGICAL BACKGROUND

According to a recently published planning document for the Eastern Planning Region of Texas (Kenmotsu and Perttula 1993:Figure 1.1.2), Leon County is situated within the Prairie-Savanna archeological study region (Figure 2). Its eastern border is the Trinity River. This river forms the boundary between Leon County and Houston and Anderson counties located in the Northeast Texas Planning Region. Madison County is its neighboring county to the south and the only one between Leon County and the Southeast Texas Planning Region. Therefore, it's logical to assume that the aboriginal groups who occupied Leon County probably shared some cultural traits with peoples in the adjacent regions. At the time of this investigation, 486 prehistoric and historic sites have been recorded at TARL. In 1985 (Biesaart et al. 1985), the site density in the county was reported as low in terms of sites per square mile with 385 recorded sites.

G. E. Arnold conducted travelled throughout East Texas as part of the government's Works Progress Administration (WPA) project sponsored by The University of Texas at Austin and he recorded the first sixteen sites in the county. His work was conducted in the 1930s, a time when the professional standards in place today were not practiced. In those days the trinomial system had not been instituted; therefore, the numbers assigned to his sites were based on the best information available. Hyo-Jai Im's (1975) thesis written while a student at The University of Texas at Austin is a detailed analysis of Arnold's activities. These WPA sponsored jobs took place between 1938 and 1941 (Guy 1990).

The first major archaeological project conducted in Leon County was a survey of the area to be affected by the proposed Upper Navasota Reservoir (now Lake Limestone). The Texas Archeological Survey conducted this work in 1972 under contract with the Brazos River Authority (Prewitt 1974; Prewitt and Dibble 1974). Only areas of high site probability such as floodplains and valley margins along the Navasota River and its major tributaries were surveyed. Fifty-two prehistoric sites were recorded within the reservoir area. Of this number, 37 were found to be situated on the crests or slopes of eroded valley margins. In 1975 and 1976, selected sites were tested for their eligibility to be included in the National Register of Historic Places (Prewitt 1975; Prewitt and Mallouf 1977). Of those sites tested, two (41LN21 and 41LN25) were in the Leon County portion of the reservoir. Other major surveys were performed at Jewett Mine (Espey, Huston & Associates, Inc. 1980; Voellinger and Freeman 1980; Freeman and Voellinger 1982; Fields 1988), and Millican Reservoir (Kotter 1982).

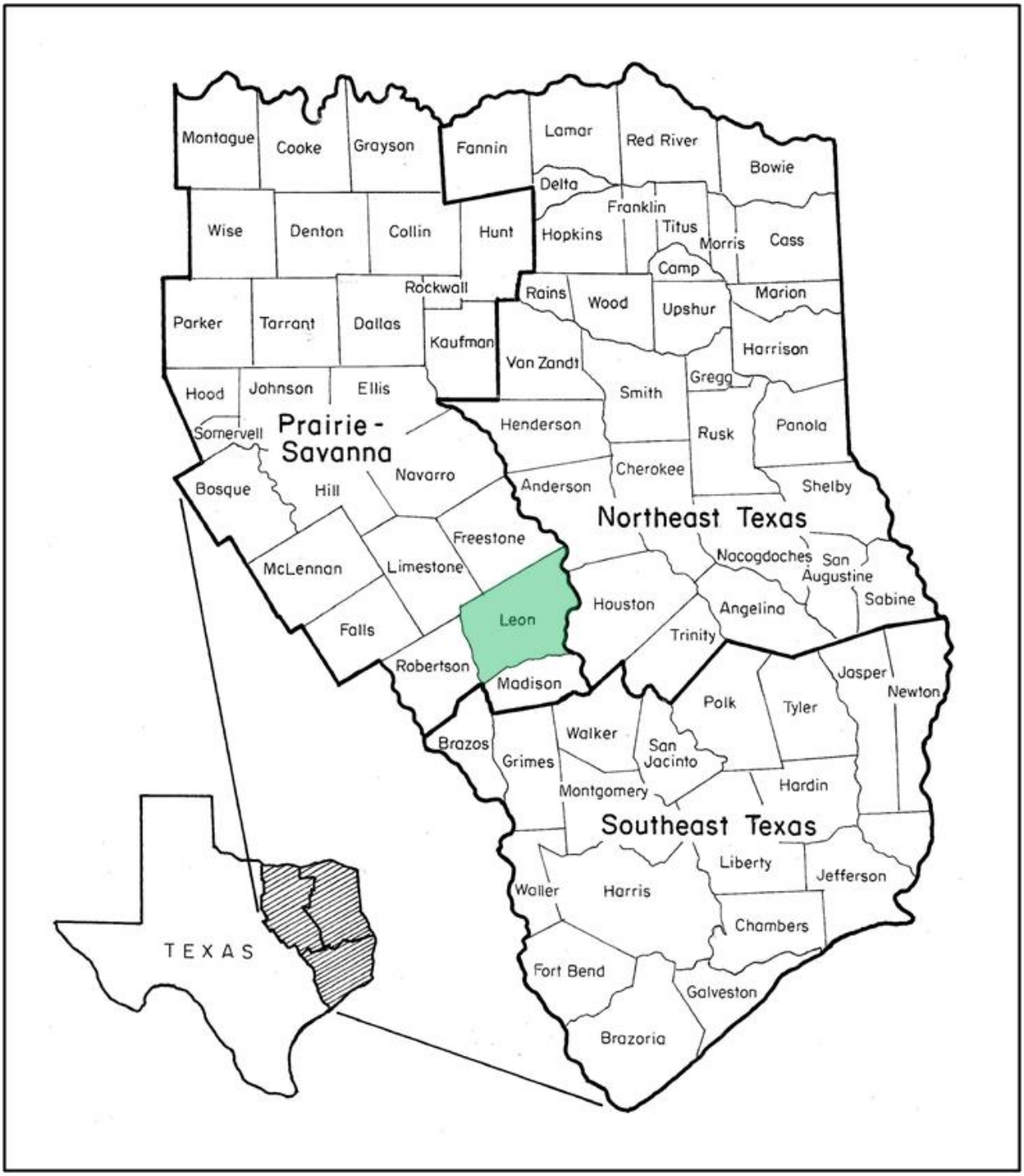

Figure 2. Archaeological Regions in the Project Area and Vicinity

Especially relevant to this study are the three surveys by BVRA for the Concord-Robbins WSC prior to the installation of water line and treatment plants. These were mainly linear surveys along roads with some cross-country segments. The areas examined were in the western part of the county and were scattered over a wide area. The size of these projects was 112 miles (Moore 1994), 84.65 miles (Moore 2002a), and 8.2 miles (Moore 2002b). These surveys recorded prehistoric and historic sites but not one that was considered eligible for the National Register of Historic Places.

Despite problems with the archaeological record of the region such as low site visibility and interpretability based on survey data, poor preservation of organic remains, a scarcity of sites with clear stratigraphy, and the prevalence of bioturbation and other disturbance factors, much has been learned about the prehistory of the area. Fields et al. (1991) integrated data from the eight excavated sites at Jewett Mine and three excavated sites at Lake Limestone to better understand the prehistory of the area. They isolated 35 cultural components or analytical units. All but two of these units represent occupations during the late Archaic, Woodland, or Late Prehistoric periods (Fields et al. 1992). The interested reader is referred to these documents for more information regarding the prehistoric and historic development of Leon County and vicinity.

FIELD METHODS

The APE consists of eight areas totaling 24.04 acres that were selected because of their proximity to water and perceived potential for containing cultural resources. Much of the water line will be in existing rights-of-way that have been disturbed by the construction of roads, a segment of now defunct railroad track, existing pipe, and buried utilities. One area was not tested because the APE was on a slope. The working easement is 15 feet on private property and is limited to the available space between the roads and fence line in road rights-of-way. Since the new line will be placed adjacent to an existing one, there were areas where the entire portion of the APE had been disturbed. Shovel testing was warranted in only four of the survey areas. The tests were dug using shovels and a posthole digger when roots and other obstacles was present that made the use of a shovel difficult. The excavated dirt was passed through ¼ inch hardware cloth. When possible, each test was dug to the maximum depth of the proposed trench. Several landforms had firm red clay at or near the surface. Tests in these areas were dug to a minimum of 12 inches. Other parts of the APE were in low-lying areas that flood regularly and often have water just below the surface. Standing water was observed in a few areas. The project was documented through a shovel test log (Appendix I), digital photography (Appendix II), and field notes.

AREAS SURVEYED

Area 1

This area parallels Private Road 4311, is 3535 feet long (1.22 acres), and is depicted on the Hilltop Lakes topographic quadrangle (Figure 3). The diameter of the pipe will be two inches and it will be placed on private property. The maximum depth of the trench will be 40 inches. The area was selected for survey because of its proximity to Long Glade Branch and minor tributaries. The only stream crossing is one of these tributaries and that is where shovel testing was conducted. Thick vegetation made it difficult to get a good picture of the tributary. The standing water in the tributary was due to recent rains in the area. Per Travis Treadway, this is the only time that appreciable amounts of water are seen in this area. Two tests were dug on each bank of the tributary. The four tests were dug through sandy loam mixed with clay to a depth of 50 inches. Per the most recent soil survey for Leon County (Neitsch et al. 1989:41), the primary soil in this area is described as Hatliff fine sandy loam, frequently flooded (Ha). A typical surface layer consists of brown fine sandy loam about 8 inches thick. The underlying stratum is brownish and grayish fine sandy loam to a depth of 72 inches. The available water capacity is low and this soil is saturated with water a few days to a few weeks in winter and early spring in most years. A high-water table is within 2 feet of the surface during the winter months.

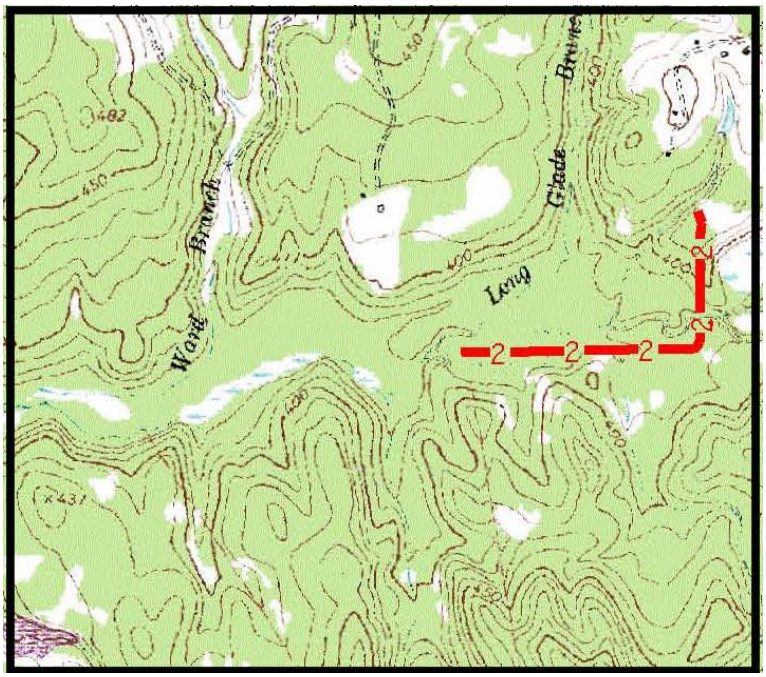

Figure 3. Area 1

Area 4

This area parallels West County Road 344, is 10,027 feet long (3.45 acres), and is depicted on the Jewett topographic quadrangle (Figure 4). The diameter of the pipe is three inches and it be placed in highway right-of-way. The maximum depth of the trench will be 40 inches. The area was selected for survey because it crosses several tributaries. No shovel tests were dug in this area because the APE was found to be in low-lying areas that flood frequently and water was seen standing in some areas. According to the most recent soil survey for Leon County (Neitsch et al. 1989:Sheet 25), this segment crosses numerous soil types. The only sizable stream in the area is Cedar Creek but it ends before reaching the APE.

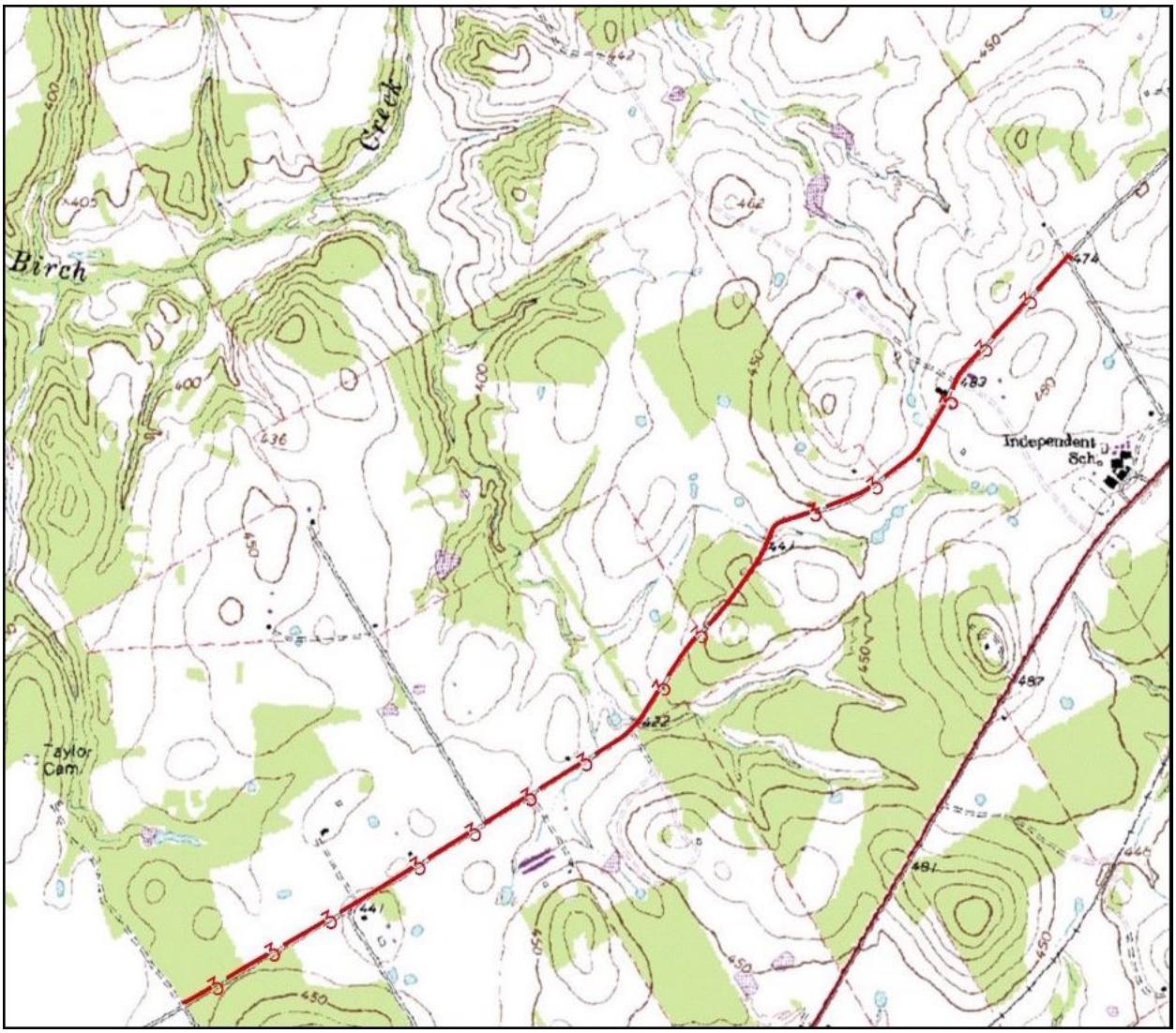

Figure 4. Area 4

Area 9

This area parallels County Road 390, is 2002 feet long (0.69 area), and is depicted on the Jewett topographic quadrangle (Figure 5). The diameter of the pipe will be two inches and it will be placed on private property. The maximum depth of the trench will be 40 inches. The area was selected for survey because it runs parallel to several tributaries. Three tests were dug through 12 inches of reddish clay loam that turned into very firm reddish clay. These tests were terminated at 12 inches. Per the most recent soil survey for Leon County (Neitsch et al. 1989), this segment crosses numerous soil types. There is no sizable stream in the area.

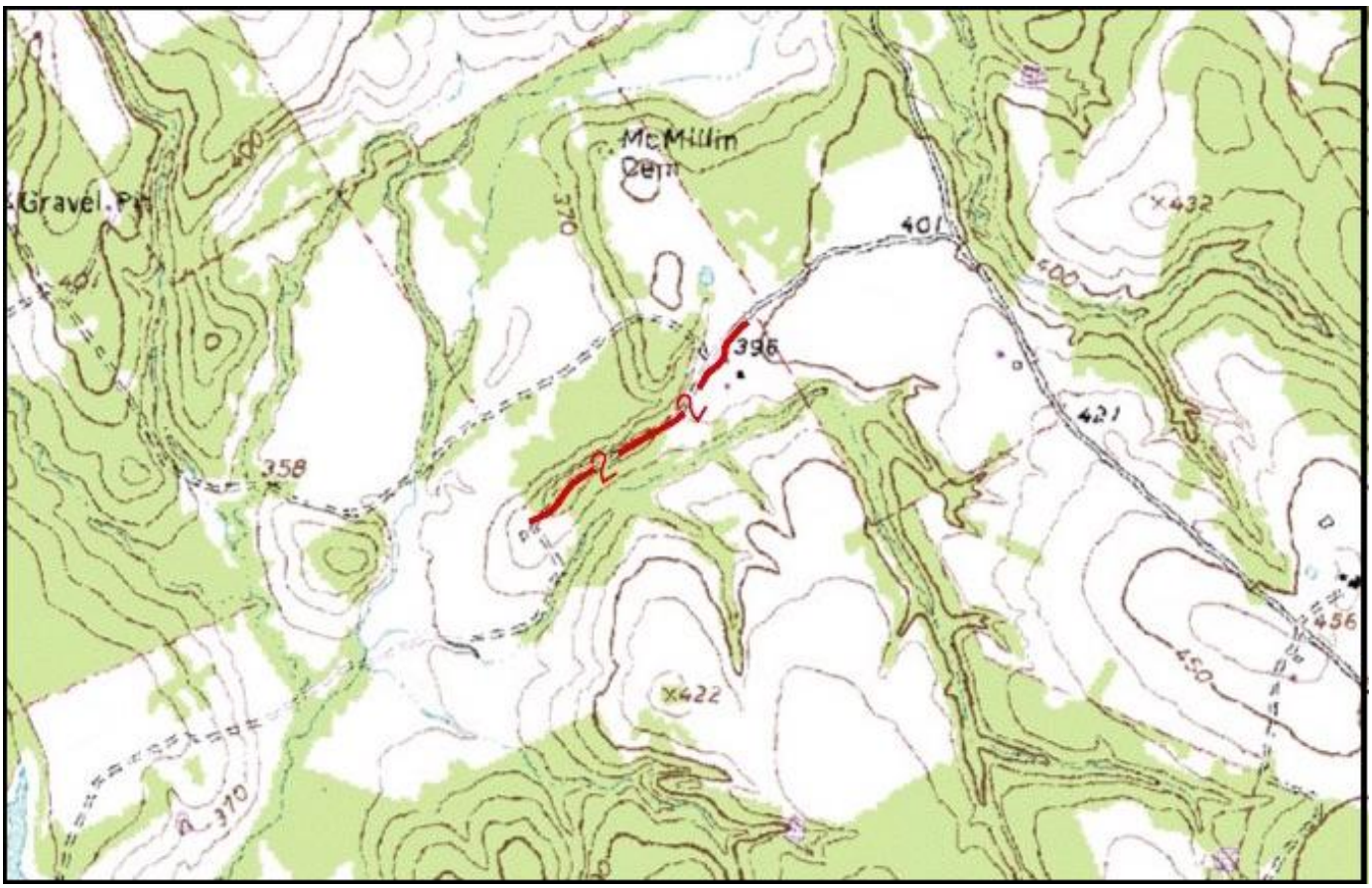

Figure 5. Area 9

Area 10

This area parallels County Road 347, is 2334 feet long (0.80 acre), and is depicted on the Jewett topographic quadrangle (Figure 6). The diameter of the pipe will be two inches and it will be placed in highway right-of-way. The maximum depth of the trench will be 40 inches. The area was selected for survey because it crosses a tributary and a high ridge overlooking the main channel of Brushy Creek. No shovel tests were dug in this area because the APE was found to be in low-lying areas that flood frequently. According to the most recent soil survey for Leon County (Neitsch et al. 1989:Sheet), the main soil types adjacent to Brushy Creek are Hatliff fine sandy loam, frequently flooded described above for Area 1 and Silstid loamy fine sand, 1 to 5 percent slopes (SdB). This loamy soil extends to a depth of 80 inches.

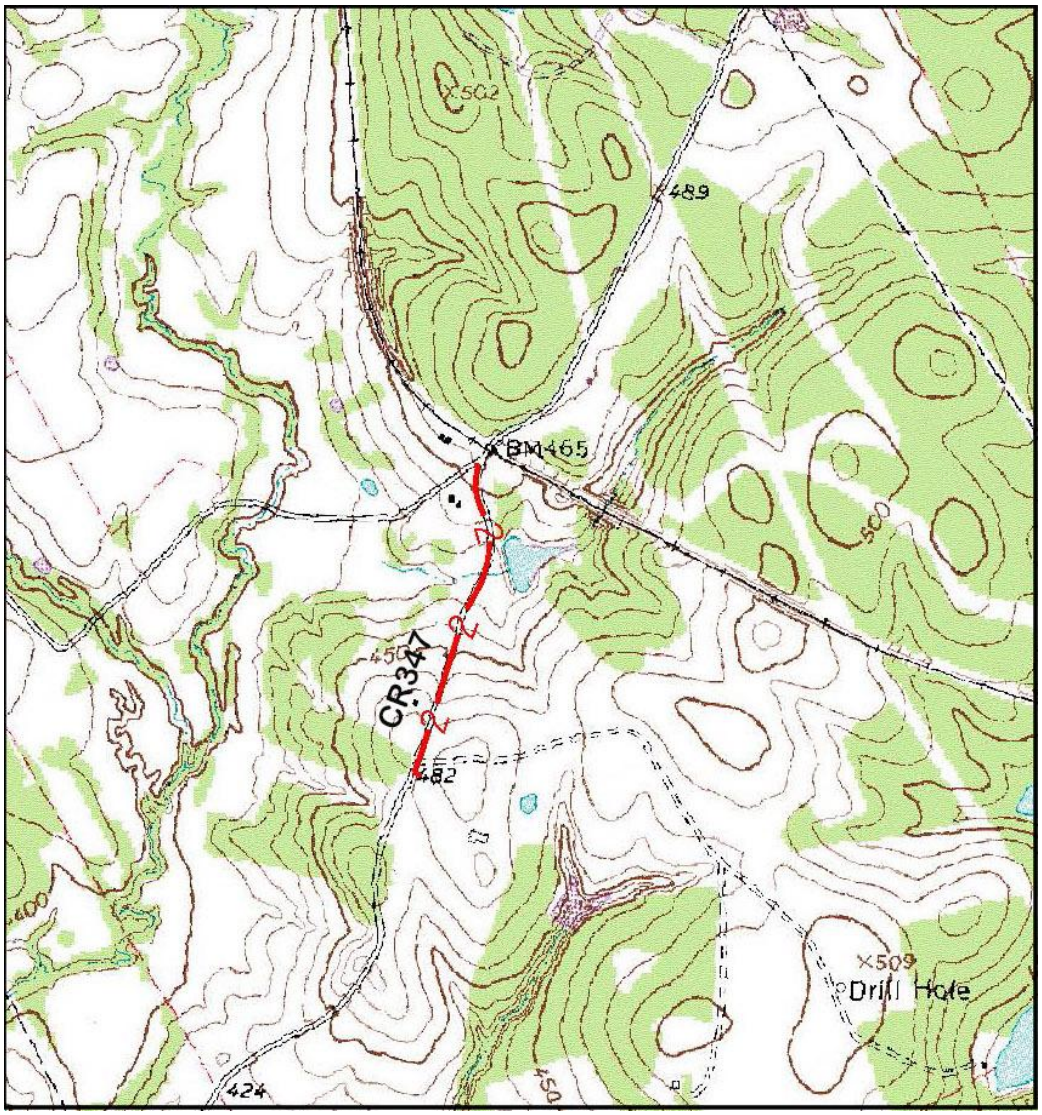

Figure 6. Area 10

Area 11

This area parallels County Road 977, is 7.5 miles long (13.64 acres), and is depicted on the Margie topographic quadrangle (Figure 7). Portions of the county road were previously surveyed by Brazos Valley Research Associates (Moore 1994). The diameter of the pipe will be three inches and it will be placed in highway right-of-way. The maximum depth of the trench will be 40 inches. The area was selected for survey because it crosses Clear Creek, Ward Branch and the upper reaches of some minor tributaries. No shovel tests were dug in this area because the APE was found to be in low-lying areas that flood frequently. Per the most recent soil survey for Leon County (Neitsch et al. 1989:53), the primary soil at the Ward Branch Crossing is Padina loamy fine sand, 1 to 8 percent slopes (PaC) and Padina loamy fine sand, 8 to 15 percent slopes (PaD). These soils are located at the upper reaches of Ward and are not indicative of the soils along the main channel. They turn into clay loam at 80 inches or more. The soils associated with the Clear Creek crossing are described by (Neitsch et al. 1989:53) as the Hatliff fine sandy loam, frequently flooded soil described above for Area 1.

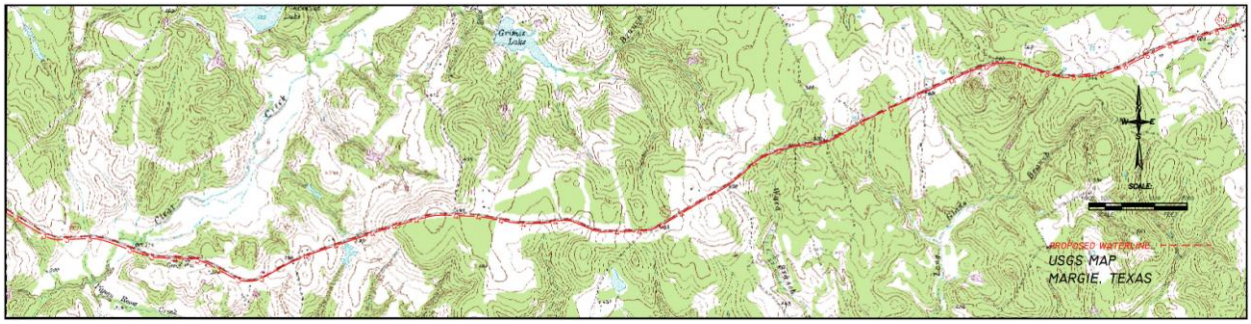

Figure 7. Area 11

Area 12

This area parallels County Road 450, is 2106 feet long (0.73 acre), and is depicted on the Margie topographic quadrangle (Figure 8). The diameter of the pipe will be two inches and it will be placed in highway right-of-way. The maximum depth of the trench will be 40 inches. The area was selected for survey because it passes near Long Branch Creek. No shovel tests were dug in this area because the APE did not cross any major drainages, clay was near the surface, and part of the area was on a slope.

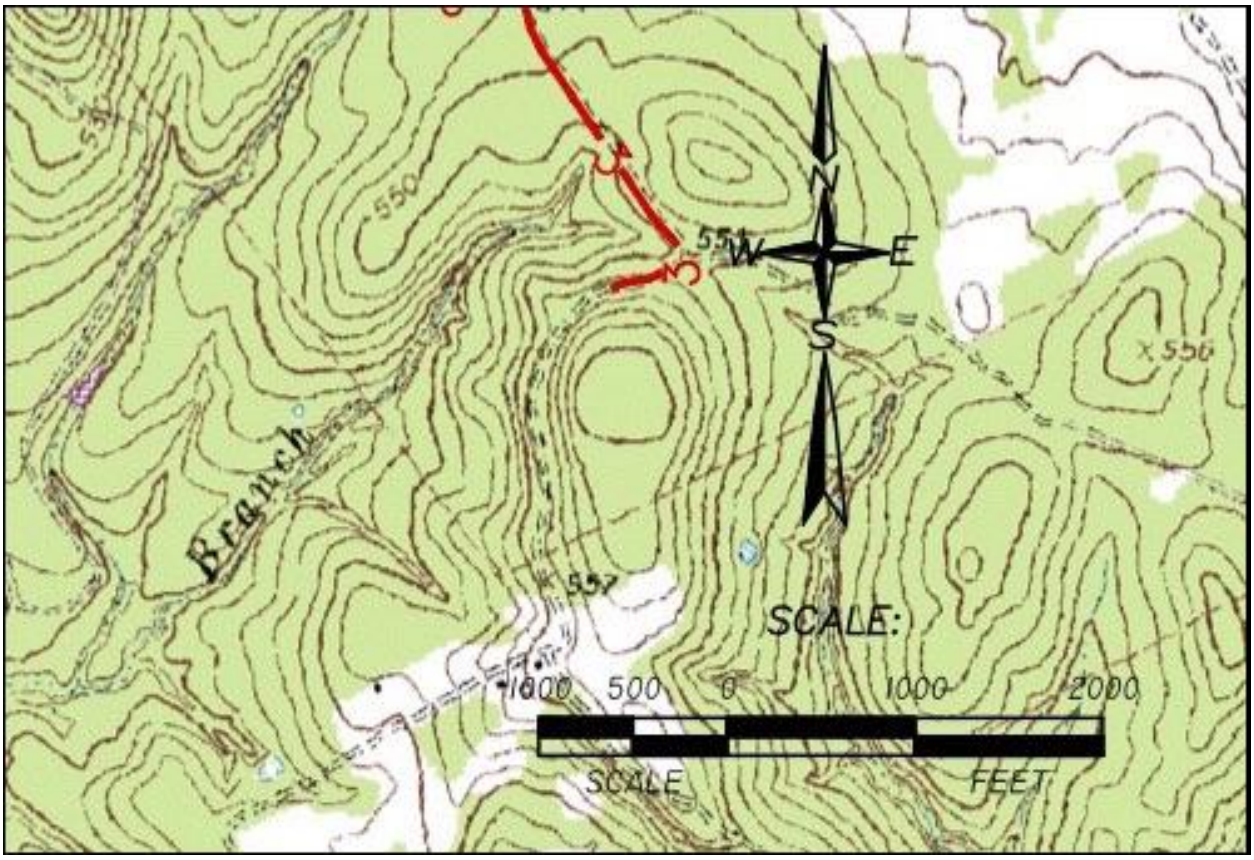

Figure 8. Area 12

Area 24

This area parallels County Road 320, is 2.3 miles long (2.36 acres), and is depicted on the Robbins topographic quadrangle (Figure 9). The diameter of the pipe will be two inches and it will be placed in highway right-of-way. The maximum depth of the trench will be 40 inches. The area was selected for survey because it crosses Beaver Creek and Lime Branch. Four tests were dug on the two banks of Lime Branch through reddish clay. Three tests were dug on the south bank of Beaver Creek through reddish clay. No tests were dug on the north bank because this is an area prone to flooding and standing water was observed on the surface in places. According to the most recent soil survey for Leon County (Neitsch et al. 1989:Sheet 34), the primary soil associated with these drainages is Hatliff fine sandy loam, frequently flooded soils (as described for Area 1).

Figure 9. Area 24

Area 28

This area parallels County Road 386, is 3350 feet long (1.15 acres), and is depicted on the Round Prairie topographic quadrangle (Figure 10). The diameter of the pipe will be two inches and it will be placed in highway right-of-way. The maximum depth of the trench will be 40 inches. The area was selected for survey because it crosses Long Hollow Branch. On the north side of the creek there is a prominent ridge that parallels the creek and that is where two tests were dug. The surface layer of this landform is reddish clay with a mixture of loam. The tests in this area were terminated at 12 inches because at that depth the clay was very firm. According to the most recent soil survey for Leon County (Neitsch et al. 1989:Sheet 31), the soil on the ridge is described as Silawa fine sandy loam (SaD), 5 to 8 percent slopes. A typical surface is brownish fine sandy loam about 8 inches thick. The subsoil is a reddish sandy clay loam to a depth of 46 inches. The water line will not be placed on this high ground but it was tested because the ridge was viewed as the most likely area for a prehistoric site. A final test was dug within 20 feet of the creek on a small sandy rise to a depth of 40 inches. The water line will pass through this area that consists of the Hatliff fine sandy loam, frequently flooded soils (as described for Area 1).

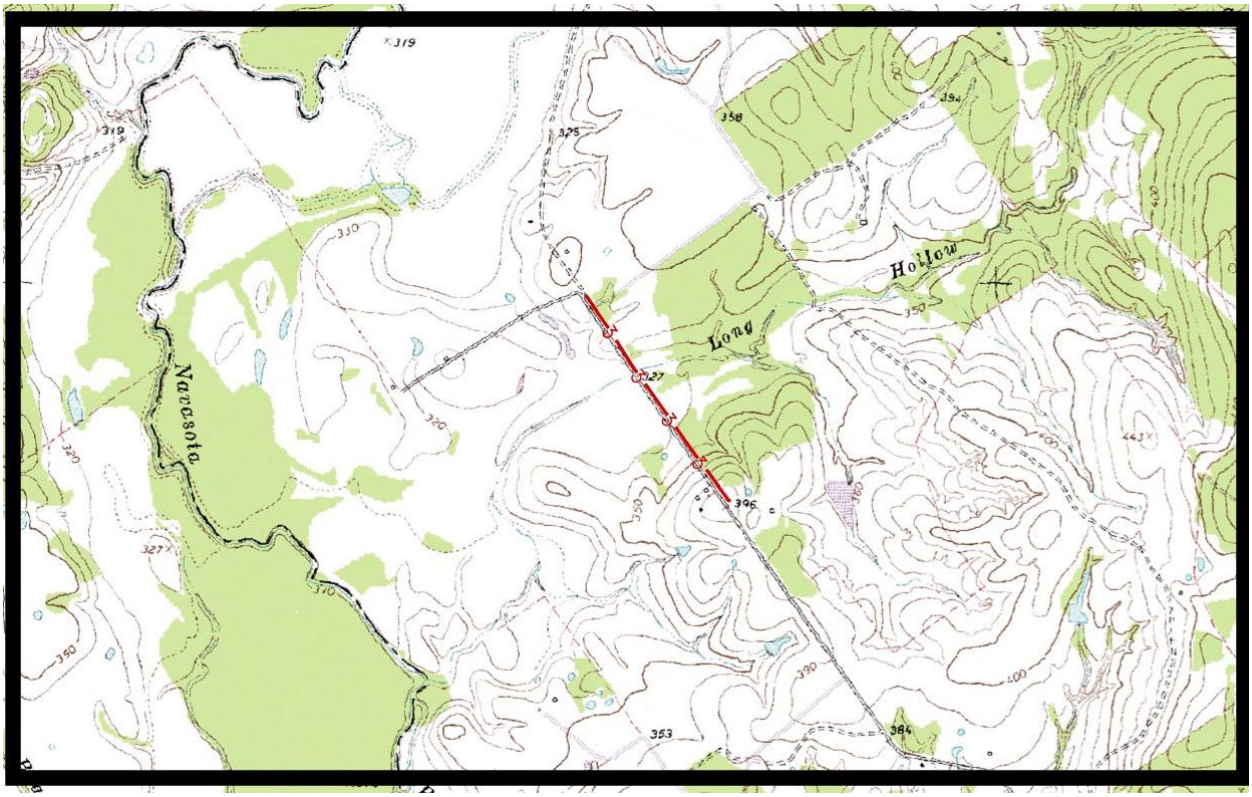

Figure 10. Area 28

RESULTS AND CONCLUSIONS

A check of the site files and topographic maps at TARL revealed no previously recorded sites in or near the project area. No previously unrecorded prehistoric sites or historic sites were found within the APE. Although significant sites exist in the county, there is a valid reason for the lack of sites in the areas investigated. The main reason is probably the fact that the route of the water line crosses no major creeks. Other factors are clay at or near the surface, slopes, and low-lying areas that flood often. Drainages are classified here as upper reaches of tributaries and possibly streams fed by runoff from higher elevations during heavy rains. Most of the APE is on stretches of land between streams. Historic sites can be found in locations not tied to water but no evidence of historic utilization was seen within the APE. No cemeteries or standing structures older than 40-50 years were present within 200 feet of the APE.

The survey by Freeman and Voellinger (1982:2-62) and others appear to support the results of this project. They found that there was an obvious scarcity of sites in areas of shallow soils. In areas where there was less than 20 cm of soils over a clay base no sites were found. When they investigated areas with deep sandy soils, they report finding “an abundance of prehistoric sites.” Their hypothesis for a preference of areas with deep sandy soil is “the possibility that certain plants that prefer these deep soils were desired and exploited by prehistoric populations.” The Texas Bull Nettle (*Cnidoscolus texanus)* is a good example. The tubers of this plant were a source of food but the edible parts often extend several feet below the ground. Another likely reason for an absence of prehistoric sites on landforms with clay at or near the surface is the problem with water retention as opposed to deep sand that allows water to drain relatively fast. Prewitt and Grombacher (1974:7) found a scarcity of sites along the major tributaries. They attribute this to the possibility that desirable or needed resources were more readily available along the main stem valley than along the tributaries.

RECOMMENDATIONS

No cultural resources sites were found within the APE. It is recommended that construction be allowed to proceed as planned without further consultation with the THC. Should cultural materials be encountered during construction in any of the 33 areas where pipe will be installed, all work should stop until the situation can be evaluated by the Texas Historical Commission in consultation with BVRA and Concord Robbins WSC.

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APPENDIX I: SHOVEL TEST LOG *

Test	Depth	Comments
		Area 1
01	50”	South bank of tributary (sandy loam mixed with clay)
02	50”	South bank of tributary (sandy loam mixed with clay)
03	50”	North bank of tributary (sandy loam mixed with clay)
04	50”	North bank of tributary (sandy loam mixed with clay)
		Area 9
05	12”	Reddish sandy clay at surface and firm clay at 6”
06	12”	Reddish sandy clay at surface and firm clay at 6”
07	12”	Reddish sandy clay at surface and firm clay at 6”
		Area 24
08	12”	South bank of Lime Branch (Reddish clay at the surface)
09	12”	North bank of Lime Branch (Reddish clay at the surface)
10	12”	North bank of Lime Branch (Reddish clay at the surface)
11	12”	South bank of Beaver Creek (Reddish clay at the surface)
12	12”	South bank of Beaver Creek (Reddish clay at the surface)
13	12”	South bank of Beaver Creek (Reddish clay at the surface)
		Area 28
14	12”	South bank of Long Hollow Branch (clay at the surface)
15	12”	South bank of Long Hollow Branch (clay at the surface)

* All tests were negative

APPENDIX II

PROJECT AREA PHOTOGRAPHS

Tributary at Area 1

The water in this drainage is due to recent heavy rains. Most of the year it is dry.

Tributary at Area 28

This is another drainage that only holds water following heavy rains. The reason for the wide channel in the foreground is because the installation of a large culvert and widening and deepening of this part of the drainage. The material on the right bank is gravel from road construction that accumulated when the water lost velocity.

Surface Exposure of Reddish Clay

This clay was observed throughout the project area. At this location, the shallow mantle of sandy loam was no longer present due to erosion.

Reddish Clay at Shovel Test 5, Area 9